## 187 Trends in pathogens colonising the respiratory tract of adult patients with cystic fibrosis, 1985–2005

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**Introduction:** This study focuses on the prevalence of pathogens colonising the respiratory tract of adult CF patients at our specialist centre between 1985 and 2005. During this time, the care and treatment of patients with CF has continued to evolve. Therefore, we hypothesised that sputum microbiology would have changed and new pathogens may have emerged.
**Method:** A retrospective analysis using data from the Royal Brompton Hospital CF database was performed.
**Results:** There were no significant changes in the proportion of patients colonised with *Pseudomonas aeruginosa* or *Staphylococcus aureus* between 1985 and 2005 (77 to 82%, $p = 0.159$; and 54% to 47%, $p = 0.108$ respectively). The prevalence of *Haemophilus influenzae* (48 to 6%; $p \leqslant 0.001$) and *Aspergillus* species (18 to 9%; $p = 0.002$) decreased. *Stenotrophomonas maltophilia* and Methicillin-resistant *Staphylococcus aureus* significantly increased (1 to 4%, $p = 0.02$; and 1 to 6%, $p = 0.002$, respectively). *Burkholderia cepacia* significantly decreased (9% (1990) to 4% (2005), $p = 0.041$). The mean $FEV_1$ and body mass index increased (47 to 53% predicted, $p = 0.0075$; and 19 to 22, $p < 0.001$, respectively).
**Conclusion:** There has been relatively little change in the proportion of patients with *P. aeruginosa* colonisation since 1985 and importantly, there has been a decline in the prevalence of *B. cepacia*, *H. influenzae* and *Aspergillus* sp. The health status of the patients has improved which, in part, may be due to the intensive antibiotic strategy which, so far has not resulted in clinically significant emergence of new pathogens.

## 188 Bacteriology of sputum in cystic fibrosis – 2 years of systematic monitoring

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Bacteriological monitoring of sputum in CF is the corner stone for therapeutical and prognostic implications.
The aim of the study is to identify positive cultures of patients with CF and compare results from the first and second year.
Bacteriological results of sputum obtained, every three months, from 130 patients of a pediatric CF center, during 2 years were included. Incidence of positive cultures and bacteriological result (*S.aureus, P.aeruginosa, B.cepacia* complex and others) were evaluated at each year and the results were compared. Incidence of MRSA and of the 2 morphotypes of *P.aeruginosa* were analyzed and compared to the total of *S.aureus* and *P.aeruginosa*, respectively.
During the 2 years the mean number of cultures/patients/year was more than four: 4.2–4.9. Cultures remained positive (81.7 and 77.9%) and showed more than one bacteria (48.9 and 49%) on both years. Comparing cultures on both years there was an increase in the number of cultures with Sa and Bc complex, and a decrease with Pa. Both MRSA/total Sa ($9.9 \rightarrow 15.9\%$) and mucoid Pa/total Pa ($47.3 \rightarrow 51.6\%$) proportions increased in the second year of study.
The systematic control of sputum collection permitted to reach the annual media of 4 cultures/year/patient. The high positivity of cultures and their mix character reinforce the importance of specific bacteriological processment of sputum of CF patients. High frequency of MRSA, mucoid morphotype of Pa and Bc complex emphasise the importance of the bacteriological monitoring in patients treatment and segregation.

## 189 Nontuberculous *Mycobacterium* in cystic fibrosis

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**Background:** Nontuberculous Mycobacteria (NTM) have emerged as significant pathogens in cystic fibrosis (CF) patients. This study is a 10-year retrospective analysis of the clinical characteristics and microbiological data of patients attending the Manchester Adult CF Centre from whom NTM was isolated.
**Methods:** Patients positive for NTM between 1997–2006 were identified from the microbiology database. Case notes were studied for type of NTM, no. of positive smears/cultures, sensitivities, co-pathogens, if receiving treatment with TOBI, azithromycin or immunosuppressives, BMI, genotype, $FEV_1$/FVC 1 year pre and post culture, if diabetic and whether treatment was given/successful.
**Results:** NTM was cultured in 24 (14 ♂) out of 320 patients. Mean age 28 years, BMI 22 and $FEV_1$ 2.2 L post acquisition. 11 patients had diabetes, 10 were delta F508/508. 6 patients had positive cultures from 1997–2001 and 18 from 2002–2006. Types of NTM were 12 MAC, 9 *chelonae*, 3 *abscessus*, 1 *gordonae* and 1 *malmoense*. 12 (50%) patients were both smear and culture positive. Co-pathogens were *Pseudomonas* N = 22, *Staphylococcus* N = 11 and *Aspergillus* N = 13.
11 patients received treatment (mean age 29 years, BMI 21, $FEV_1$ 1.9 L) and eradication occurred in 6 (2 *chelonae*, 3 MAC, 1 *malmoense*). 13 and 2 patients were receiving azithromycin and TOBI respectively at the time of the first positive culture. The NTM became azithromycin resistant in 3 untreated patients taking prophylactic monotherapy.
**Conclusions:** The incidence of NTM in our unit has increased over the past 10 years with MAC and *M. chelonae* predominating. Eradication treatment was successful in 50% of patients. Azithromycin resistance may develop in patients taking monotherapy.

## 190 Occurrence of fungi in the respiratory tract of adults with cystic fibrosis

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**Objective:** Frequency and characteristics of fungi isolated from sputum in adults with cystic fibrosis (CF) were retrospectively investigated.
**Material and Methods:** Mycological data from CF patients followed at our French University Hospital over a two year period (2005–2006) was extracted from our laboratory computer.
201 patients were included: 47% women and 53% men, 17 to 65 years old. A total of 657 respiratory samples were analysed.
**Results:** Positive fungal samples were observed in 94.5% (190/201) of the patients. Filamentous fungi were isolated from 65.6% (132/201). 48.2% (97/201) of the patients had only one species whereas 17.4% (35/201) had more than one species. *Aspergillus fumigatus* was the predominant species for 56.7% (114/201) of the patients. Other *Aspergillus* species (*A. flavus*, *A. niger*, *A. nidulans*, *A. terreus*, and *A. versicolor*) were isolated from only 9.4% (19/201) of the patients. *Scedosporium* spp. were isolated from 3.4% (7/201) of the patients. The proportion of positive samples by patient for *A. fumigatus* and *Sedosporium* spp. were 71% and 58% respectively contrary to the other filamentous fungi with a proportion of 23%. Yeasts were isolated from 72.4% (152/210) patients.
*Candida albicans* was the predominant species for 72.1% (145/201) of the patients. The proportion of positive samples by patient was 66% for *C. albicans* and only 27% for non-*albicans* spp.
**Conclusion:** The occurrence of fungi in the respiratory tract of CF adults is very high, mainly represented by *A. fumigatus* and *C. albicans* which are continuously isolated in most of the patients.